Tampereen yliopisto
Tampere University

Technology drives healthcare reform?

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Tampereen yliopisto
Tampere University

Smallpox
(*Variola major and minor*)

Edward Jenner
1798
Variolae vaccinae
ie cowpox

Last case in 1977-
WHO anounced smallbox to be eradicated in 1980


Consumer Mobile Apps
Consumer Wearables
Health System Disease Management Apps
Connected Biometric Sensors
Text Messaging or Email
Smartphone Cameras
Digital Health
Web-based Interactive Programs
Personal Health Records
Telemedicine and Virtual Physician Visits
In-Home Connected Virtual Assistants
Clinical Trial Patient Information Collection Tools
Source: IQVIA Institute, Sep 2017
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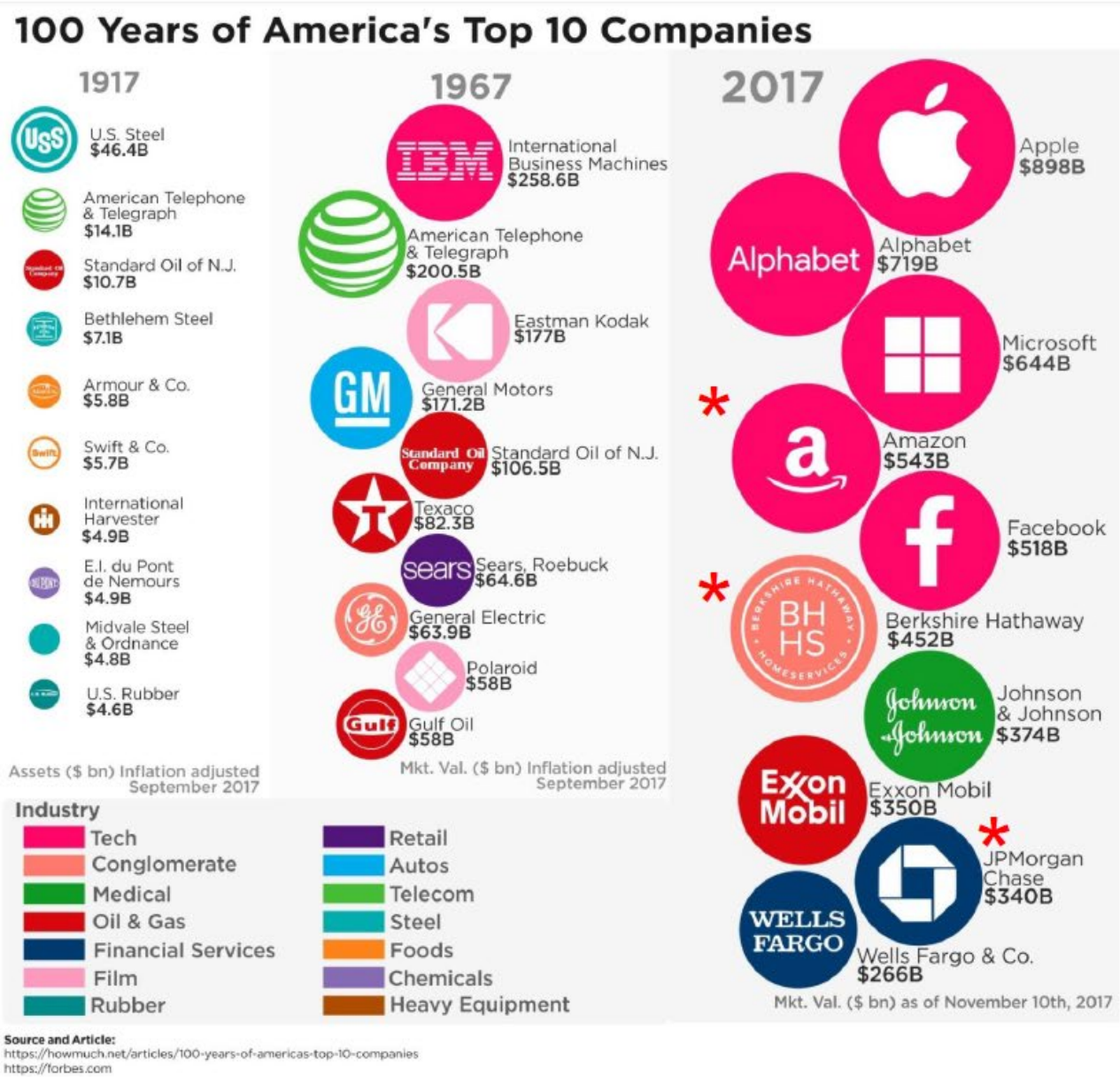
Health care sector includes the broader economy

Health systems
Biotech/Pharmaceuticals
Medical devices
Investing
…
Tech
Consumer
Finance
Real estate
Lifestyle/wellness
Food/diet



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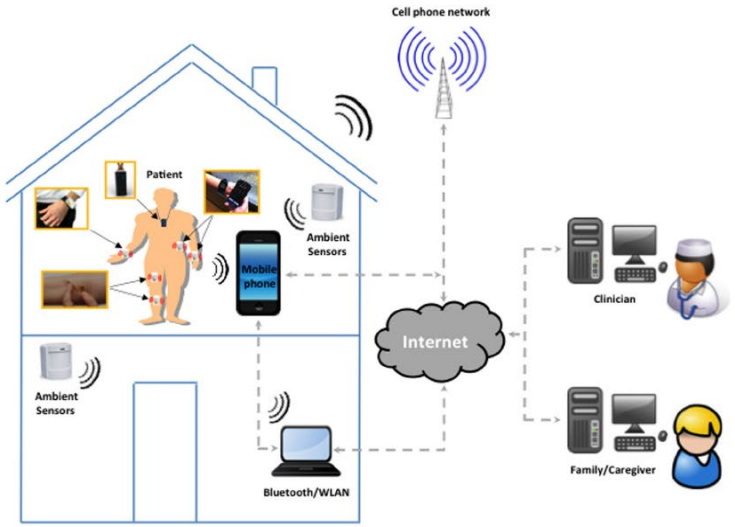

JAMA Neurology | Brief Report

Using Smartphones and Machine Learning to Quantify Parkinson Disease Severity

The Mobile Parkinson Disease Score

Andong Zhan, MS; Srihari Mohan; Christopher Tarolli, MD; Ruth B. Schneider, MD; Jamie L. Adams, MD; Saloni Sharma, MD; Molly J. Elson, BA; Kelsey L. Spear, MPH; Alistair M. Glidden, BS; Max A. Little, PhD; Andreas Terzis, PhD; E. Ray Dorsey, MD; Suchi Saria, PhD

Table 2. Correlation Matrix Between the Mobile Parkinson Disease Score (mPDS) and Standard Parkinson Disease Outcome Measures

Test[a]	mPDS, *r* (*P* Value)	MDS-UPDRS Part III Only, *r* (*P* Value)	MDS-UPDRS Total, *r* (*P* Value)	Timed Up and Go Time, *r* (*P* Value)	Hoehn and Yahr Stage, *r*
mPDS	1.00				
MDS-UPDRS part III–only subscore	0.88 (<.001)	1.00			
MDS-UPDRS total	0.81 (<.001)	0.82 (<.001)	1.00		
Timed Up and Go assessment	0.72 (.002)	0.74 (.002)	0.27 (.36)	1.00	
Hoehn and Yahr stage	0.91 (<.001)	0.96 (<.001)	0.80 (<.001)	0.70 (.003)	1.00

Artificial intelligence diagnosis tools

FDA News Release

FDA permits marketing of artificial intelligence-based device to detect certain diabetes-related eye problems

Google Brain

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Article

International evaluation of an AI system for breast cancer screening

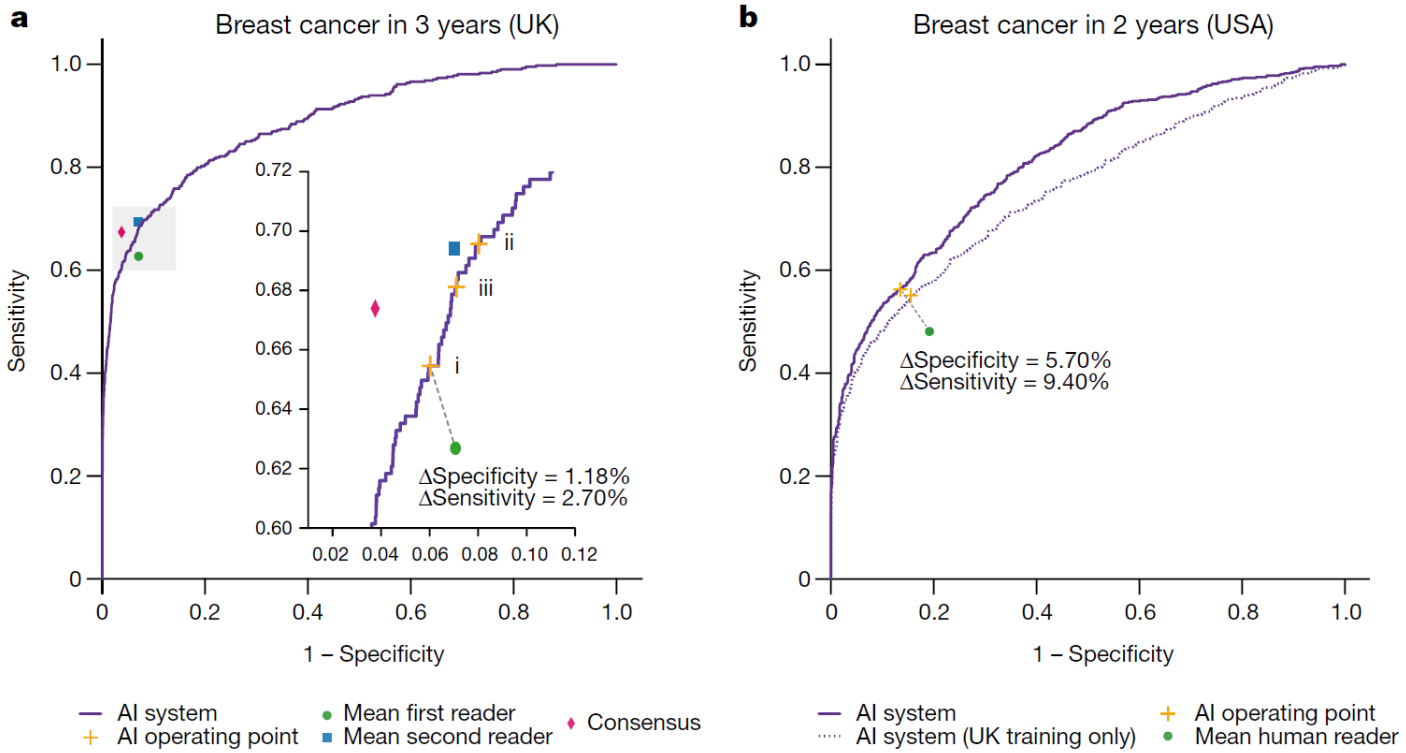
https://doi.org/10.1038/s41586-019-1799-6

Received: 27 July 2019

Accepted: 5 November 2019

Published online: 1 January 2020

Scott Mayer McKinney[1,14]*, Marcin Sieniek[1,14], Varun Godbole[1,14], Jonathan Godwin[2,14], Natasha Antropova[2], Hutan Ashrafian[3,4], Trevor Back[2], Mary Chesus[2], Greg S. Corrado[1], Ara Darzi[3,4,5], Mozziyar Etemadi[6], Florencia Garcia-Vicente[6], Fiona J. Gilbert[7], Mark Halling-Brown[8], Demis Hassabis[2], Sunny Jansen[9], Alan Karthikesalingam[10], Christopher J. Kelly[10], Dominic King[10], Joseph R. Ledsam[2], David Melnick[6], Hormuz Mostofi[1], Lily Peng[1], Joshua Jay Reicher[11], Bernardino Romera-Paredes[2], Richard Sidebottom[12,13], Mustafa Suleyman[2], Daniel Tse[1]*, Kenneth C. Young[8], Jeffrey De Fauw[2,15] & Shravya Shetty[1,15]*



Artificial intelligence for diagnosis and grading of prostate cancer in biopsies: a population-based, diagnostic study

Peter Ström, Kimmo Kartasalo*, Henrik Olsson, Leslie Solorzano, Brett Delahunt, Daniel M Berney, David G Bostwick, Andrew J Evans, David J Grignon, Peter A Humphrey, Kenneth A Iczkowski, James G Kench, Glen Kristiansen, Theodorus H van der Kwast, Katia R M Leite, Jesse K McKenney, Jon Oxley, Chin-Chen Pan, Hemamali Samaratunga, John R Srigley, Hiroyuki Takahashi, Toyonori Tsuzuki, Murali Varma, Ming Zhou, Johan Lindberg, Cecilia Lindskog, Pekka Ruusuvuori, Carolina Wählby, Henrik Grönberg, Mattias Rantalainen, Lars Egevad, Martin Eklund*

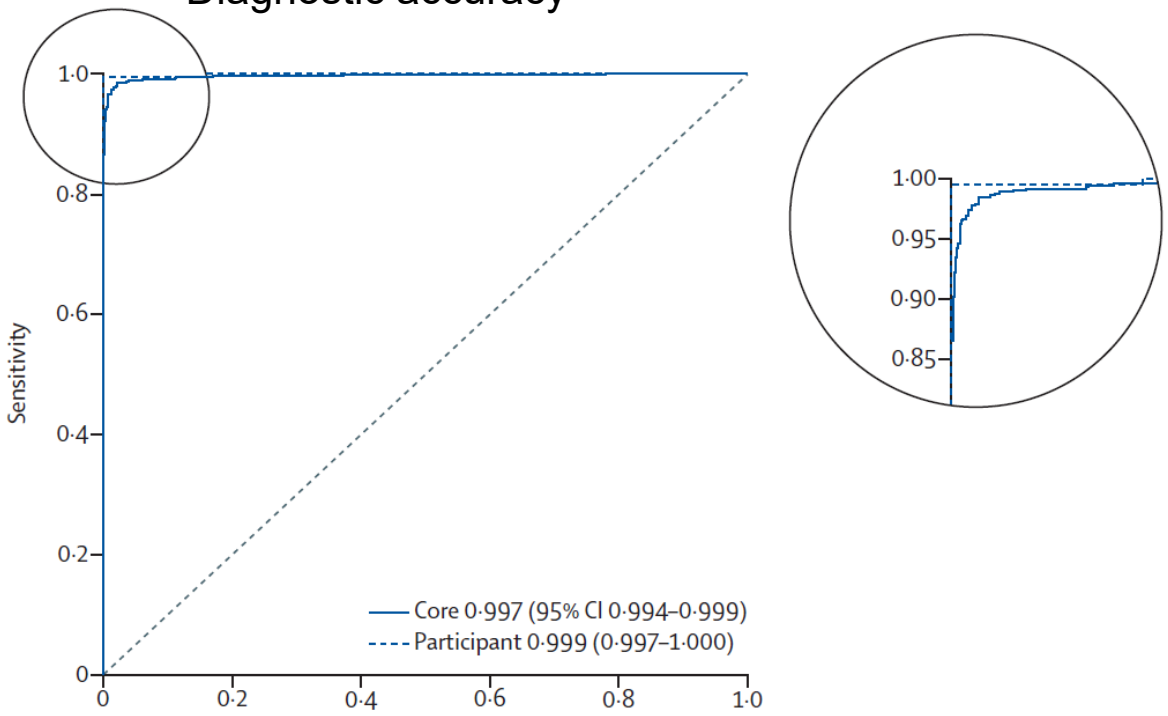
Lancet Oncol 2020; 21: 222–32

Summary

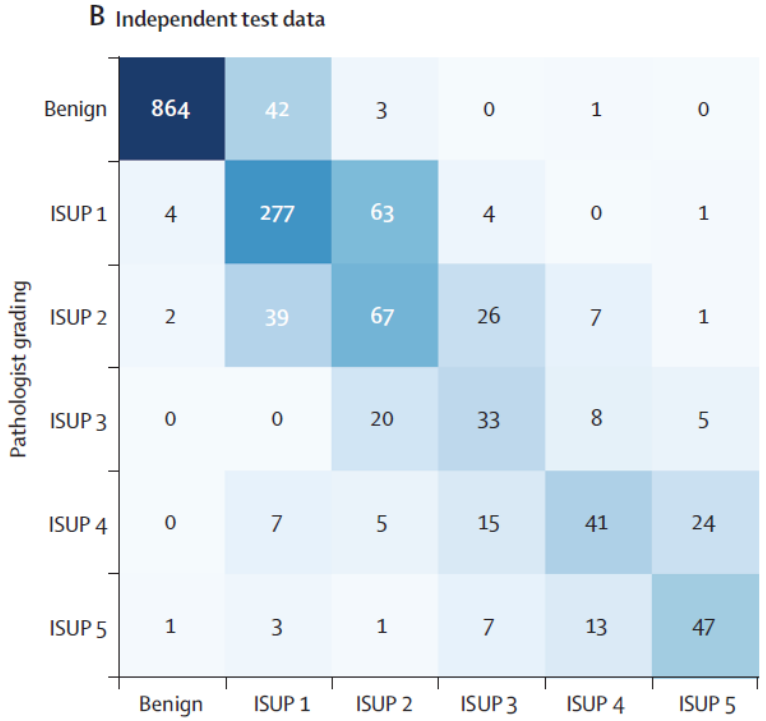
Background An increasing volume of prostate biopsies and a worldwide shortage of urological pathologists puts a

A

Diagnostic accuracy



Gleason grading



AI

Robotic-assisted laparoscopic radical prostatectomy

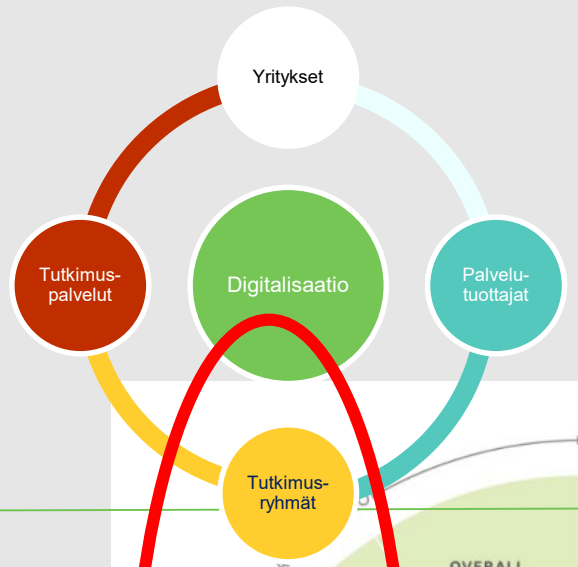
**Instead of investing to the development of systems,
should we invest to the technology itself?**

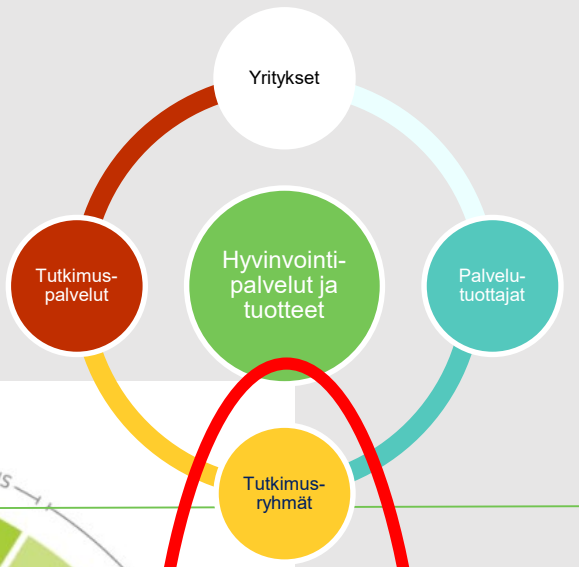
Terveystiedon hyödyntämisen kärkihanke

Yhteistyö-kumppanit

Alaprojektit

Yhteistyö-alustat ja infra-struktuurit

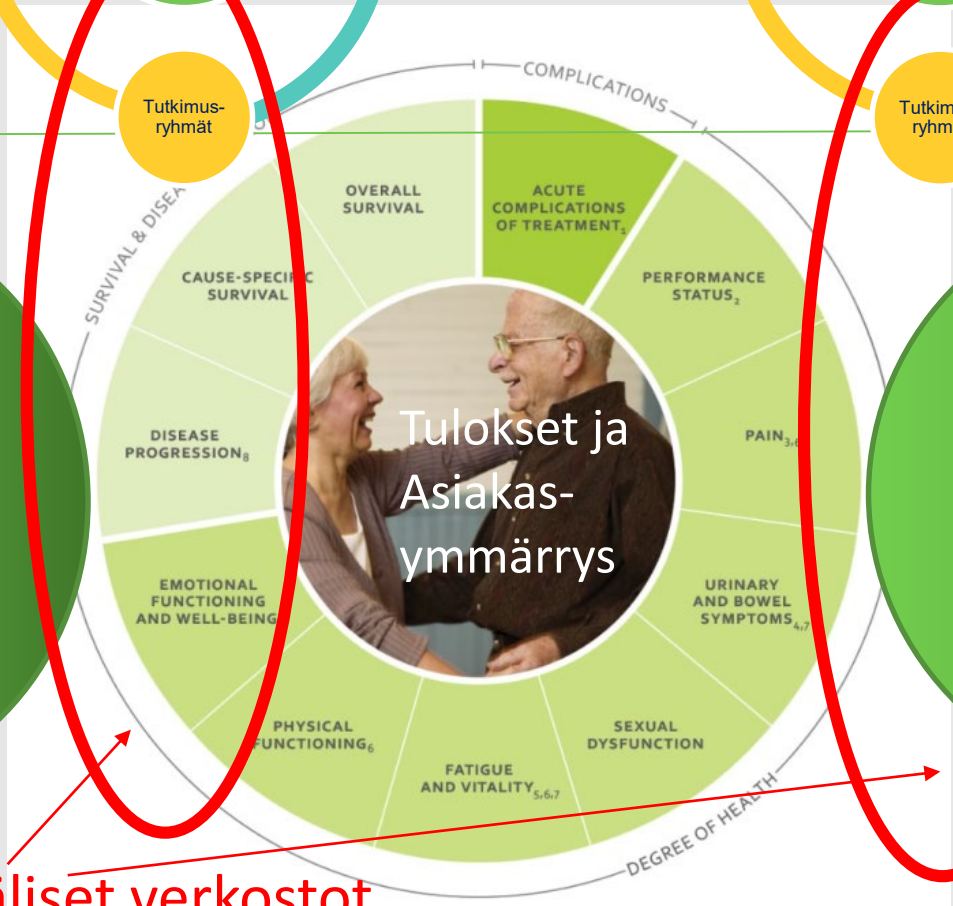




Potilastieto (*Tietoallas*) ja potilaan *omatieto*

Korkealaatuiset näytteet (*Biopankki*)

Prosessitieto (Hoito- ja diagnostiset käytännöt ja menetelmät - Prosessit, resurssit -kustannukset..)



Tays ja KEHYS hoitopolkujen ja palvelujärjestelmien tutkimisen alustoina

Profi- ja lippulaivaprojekti ja kansainväliset verkostot